

MOIST SUBSTRATE HABITATS FOR PIPING PLOVERS



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“Moist Substrates” = protected
bay intertidal flats and inland
pools or flats

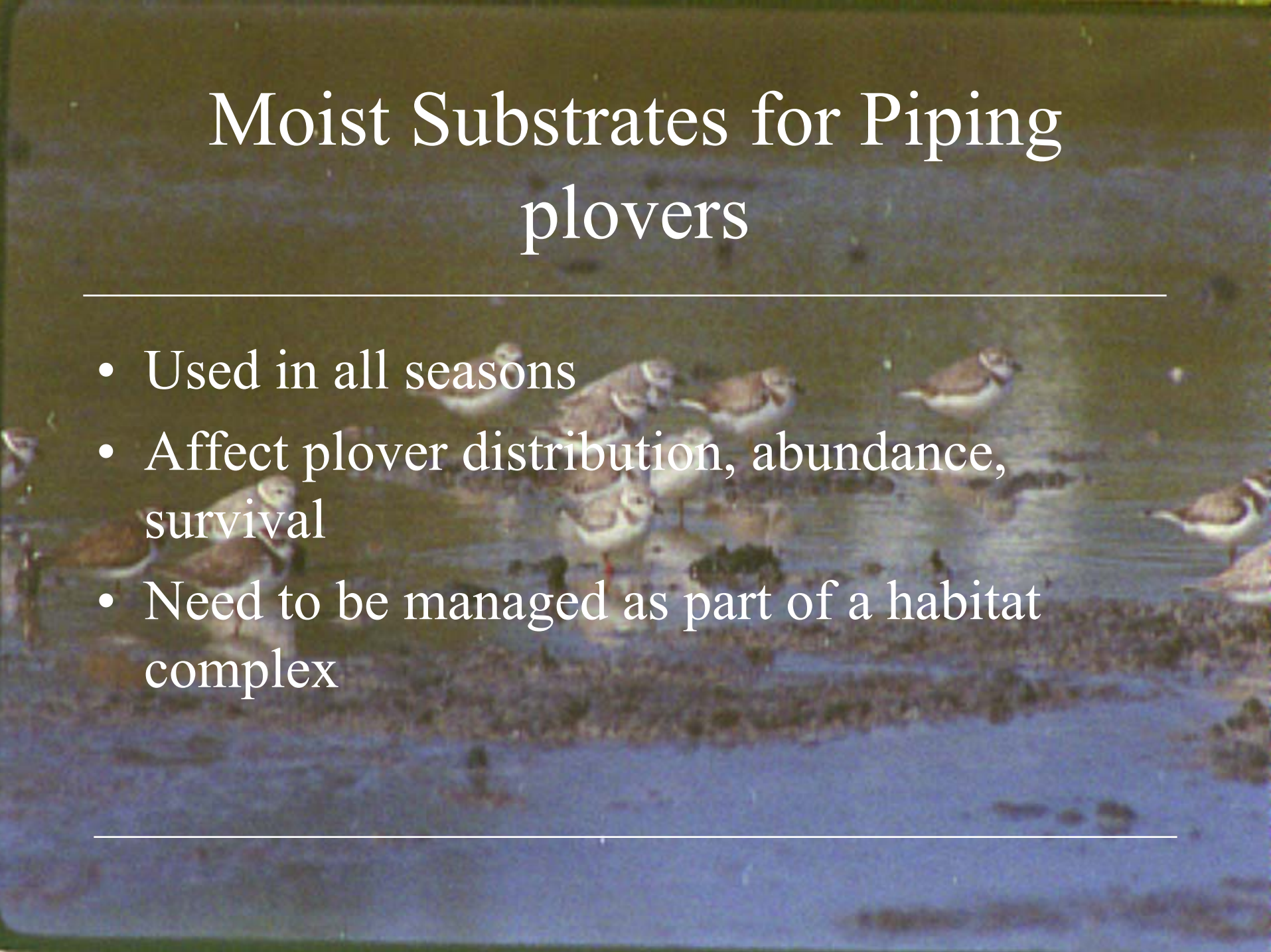
Not the ocean or gulf intertidal
zones with high energy waves





Moist Substrates for Piping plovers

- Used in all seasons
 - Affect plover distribution, abundance, survival
 - Need to be managed as part of a habitat complex
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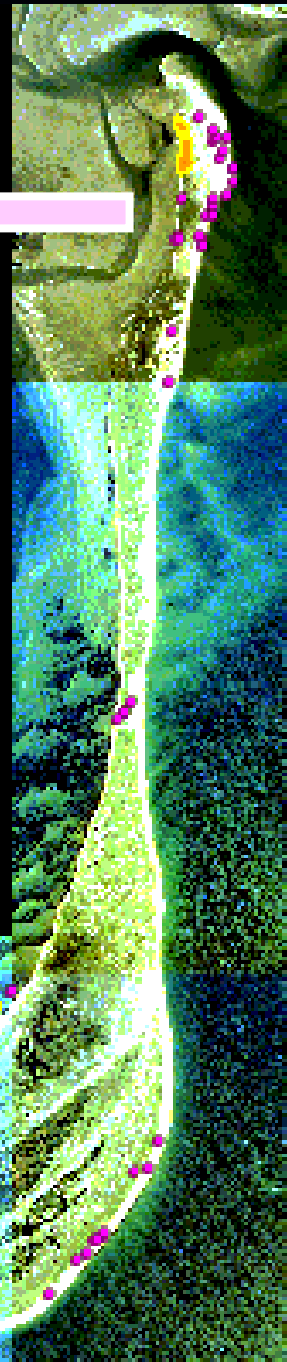
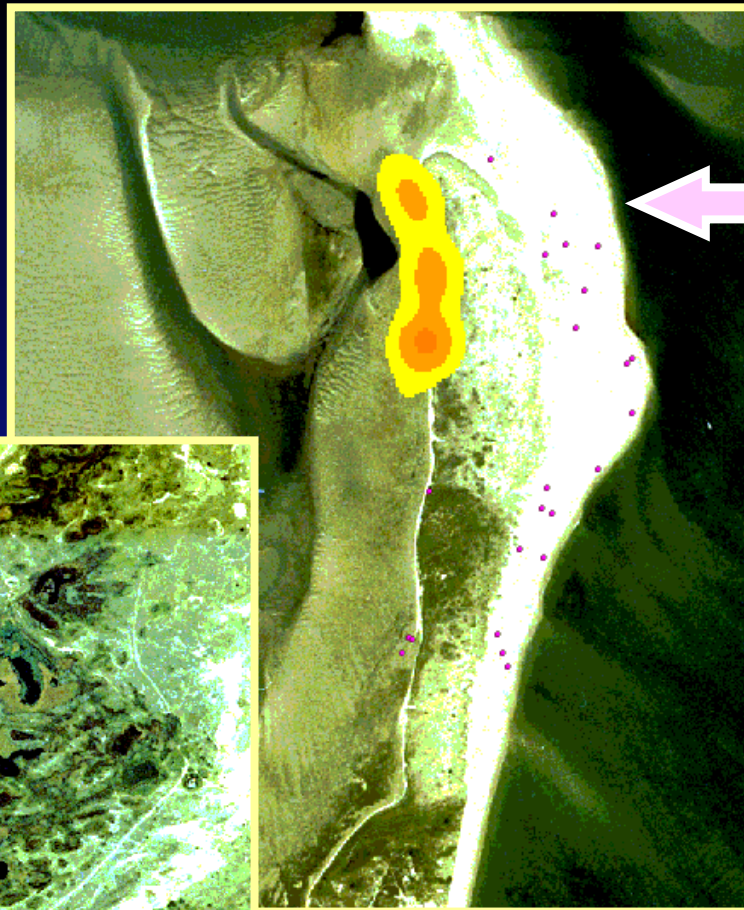
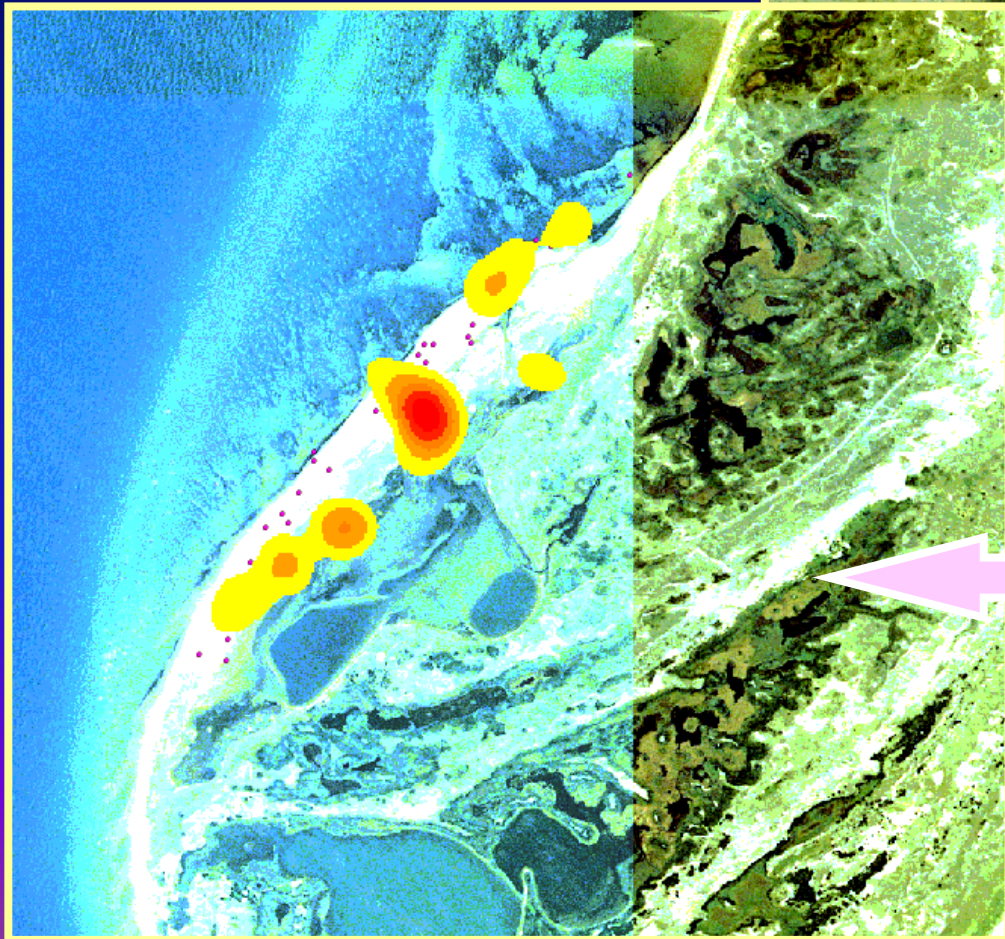
Prebreeding Use of Moist Substrates



Prebreeding Piping Plovers, South Monomoy Island, MA

Habitat	% of Foraging Plovers
Sound ITZ	53%
Tidal Pond ITZ	30%
Sound Fresh Wrack	<u>7%</u>
Total Moist Substrate Use	90%

Pre-nesting Adult Foraging Areas 1998-2000



Effect of Moist Substrates on Breeding Distribution





MARYLAND

NORTH END

32 nests
Foot Access

ORV Access
1 nest

VIRGINIA

WASH FLATS
25 nests
Foot Access

WILD BEACH
23 nests
Foot Access

HOOK 24 nests
ORV Access



9-29-85

152.731







Breeding Piping Plovers, West Hampton Dunes, New York



Piping Plover distribution, West Hampton Dunes and Westhampton Beach, NY, 2000



13 Pairs/Km

2.8 Pairs/Km

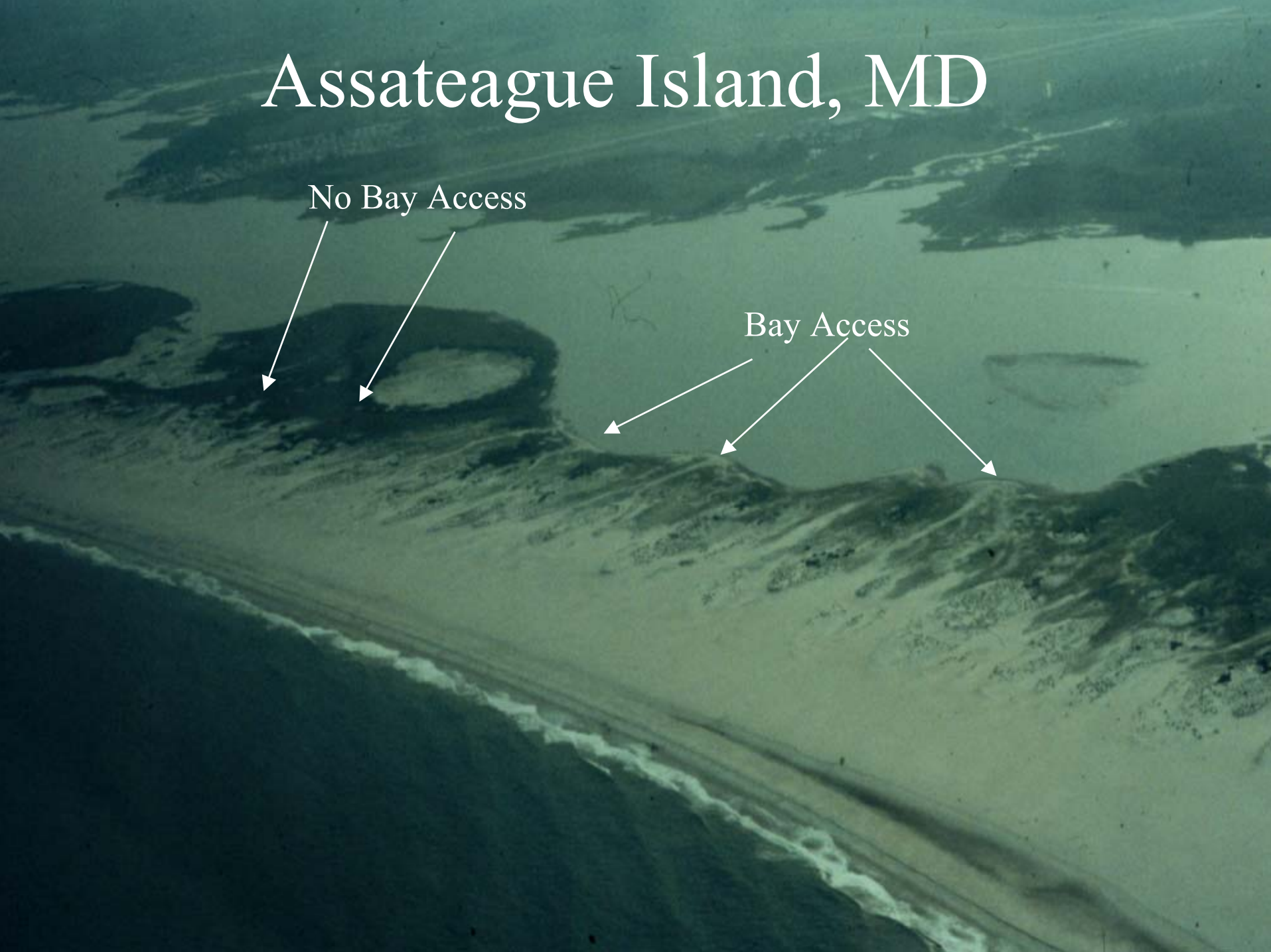
Effect of Moist Substrates on Chick Survival



Assateague Island, MD

No Bay Access

Bay Access



MD PLOVERS

Habitat	Bugs	Pecks/m	Weight	Survival
Bay Beach	43.2	13.3	8.5	67%
Interior	27.3	10.8	8.0	71%
Ocean Beach	3.9	5.9	6.8	19%
P	0.0001	0.01	0.02	0.0001



N.Y. ACCESS TO EPHEMERAL POOLS

	Habitat	Bugs	Use	Availability
1992	Pools	57	53	16
1993	Pools	114	75	21
1993	Bay ITZ	40	57	10

N.Y. Chick Survival

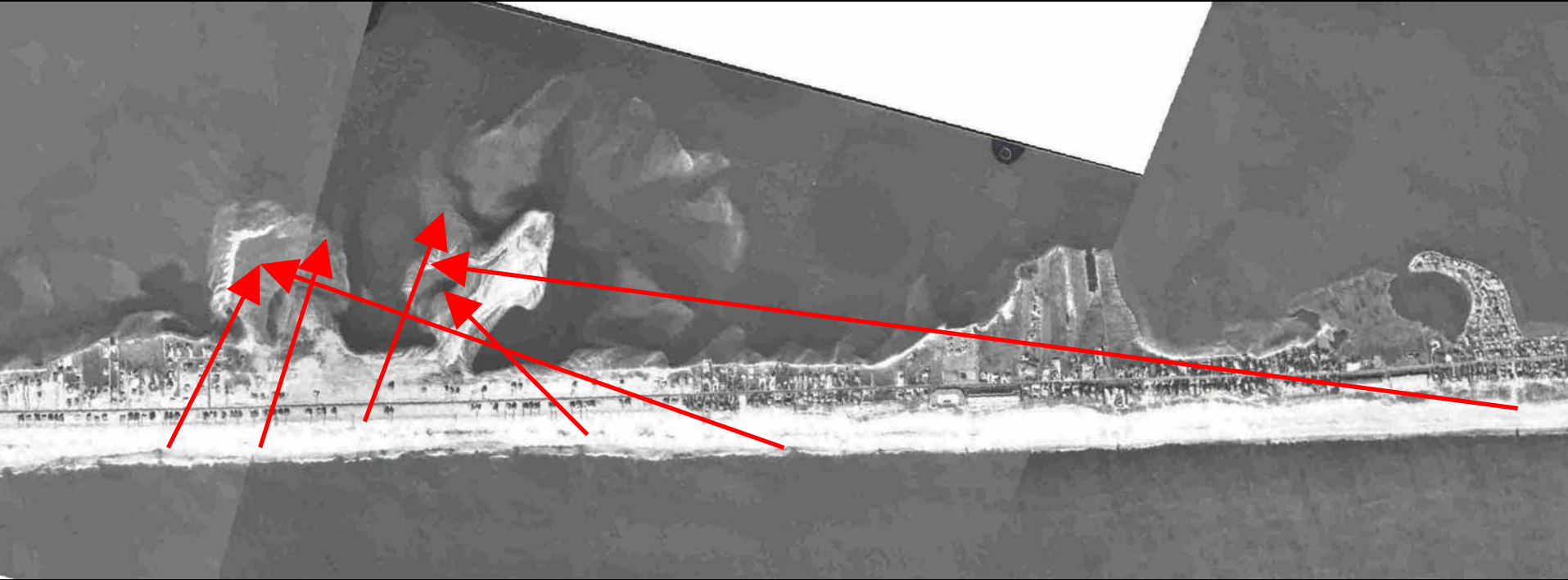
1992

Pools Available	58%
No Pools	35% *

1993

Pools available	53%
Bay tidal Flats	49%
Neither pools nor flats	48% ns

Post Breeding Use of Bay Tidal Flats



Effect of Moist Substrates on Winter Distribution



Winter Habitat Use

Use of mud and sand flats = 93% in Alabama Johnson and Baldassre 1988

% mudflat, sandflat & tide pool helped discriminate used from unused habitats Nicholls and Baldassre 1990

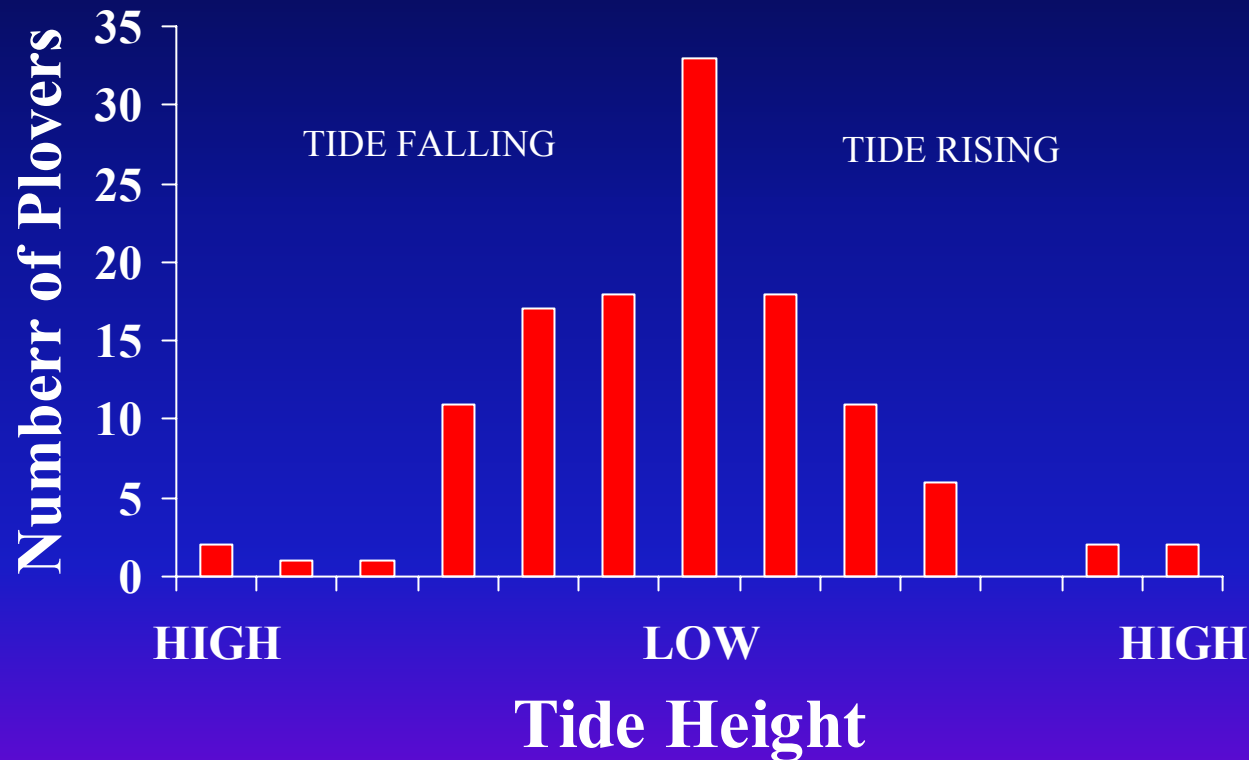
Texas Gulf coast densities greatest in bay habitats Zonick 2000

Radio-tagged birds spent 89% of their time on moist substrates in winter Drake et al. 2001

Habitat Complexity and Juxtaposition



Prebreeding Piping Plovers Foraging on Sound Intertidal Zone, South Monomoy Island, MA





4-22-97

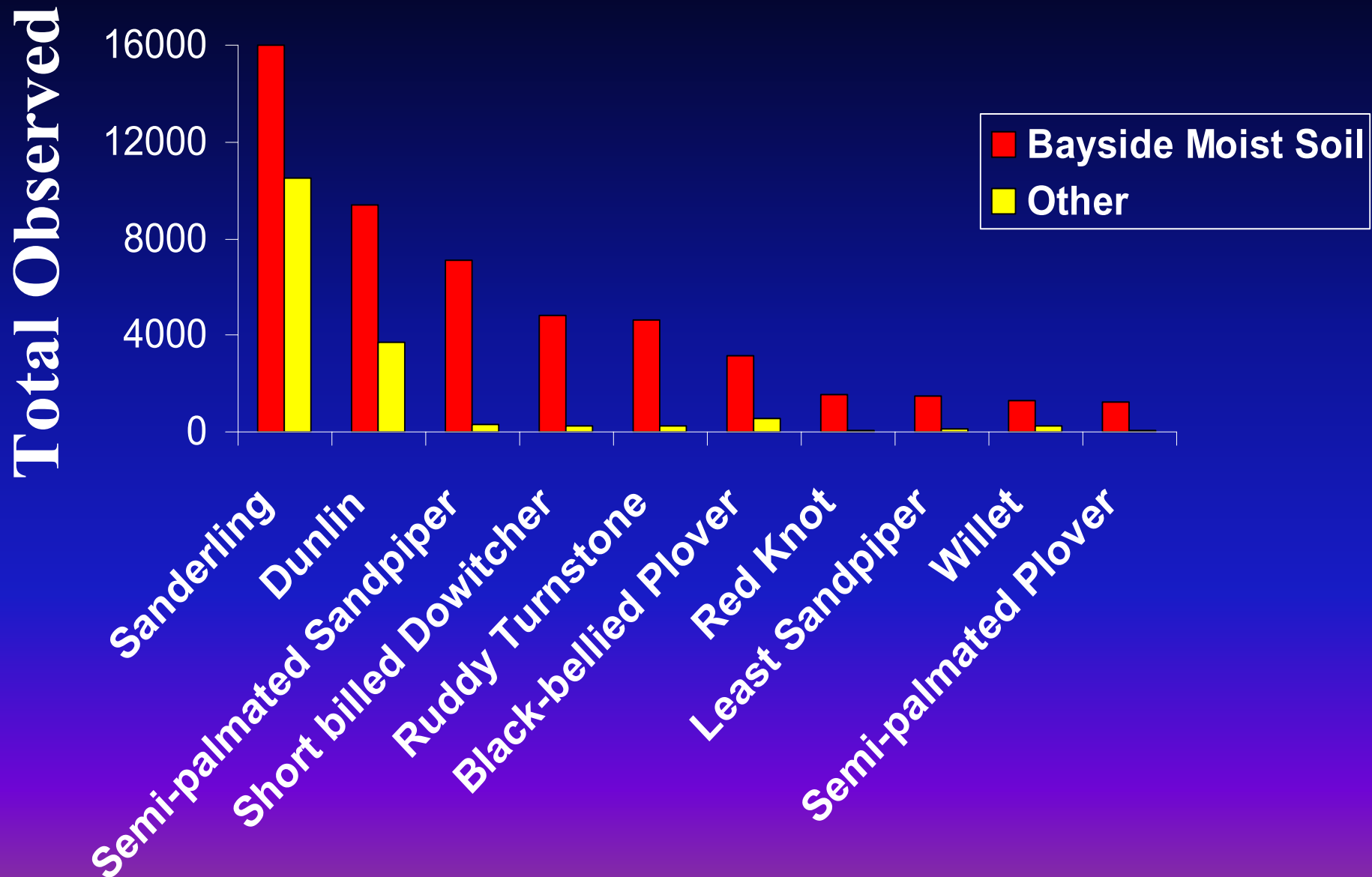
19

97-157

4-94

The Village of West Hampton Dunes

Shorebirds Observed, West Hampton Dunes, NY, on 445 surveys, 1997-2000



Management Implications

- Goal: Sustained Yield of Unvegetated Moist Substrate Habitats
- Context: Habitat Complexes
 - Wide beaches
 - Ocean or gulf ITZ
 - Sparse vegetation
 - Low disturbance
 - Few predators

Management Implications (2)

- Allow Natural Processes to Operate
 - They work!

Management Implications (3)

- Habitat Restoration May be Possible
 - Need to Restore the Ecosystem
 - Nutrient transport
 - Larval settlement rates
 - Invertebrate population dynamics





Remember, Only You Can
Prevent Moist Substrates





Remember, Only You Can Prevent Moist Substrates!



Thanks to:

- National Park Service
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- Patuxent Wildlife Research Ctr



